

09/394647

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(FILE 'HOME' ENTERED AT 13:43:04 ON 14 JUN 2001)  
FILE 'REGISTRY' ENTERED AT 13:43:13 ON 14 JUN 2001  
E CHLORINE DIOXIDE/CN

L1 1 S E3  
L2 1 S 314-13-6  
L3 1 S 915-67-3  
SEL NAME L1  
SEL NAME L2  
FILE 'CA' ENTERED AT 13:48:41 ON 14 JUN 2001

L4 8450 S L1 OR CLO2 OR OCLO OR E1-25  
L5 2222 S L2 OR E26-34  
L6 5248 S L3 OR AMARANTH OR NAPHTHOL RED OR BORDEAUX  
L7 969 S L4(5A) (DETECT? OR DETERMIN? OR ASSAY? OR ANALY? OR MEASUR? OR MONITOR? OR TEST? OR ESTIMAT? OR EVALUAT? OR QUANTIF? OR SENSE# OR SENSOR OR SENSING OR PROBE# OR PROBING)

L8 2 S L7 AND AZO?  
L9 3 S L7 AND L5-6  
L10 232 S L5-6 AND (BORATE OR BORIC OR BO3 OR BO4 OR BUFFER?)  
L11 44 S L10 AND (REAGENT OR COLORIM? OR PHOTOMET? OR SPECTROPHOTOMET?)  
L12 1765 S (HYPOCHLORI? OR HYPOCHLOROUS OR OCL OR CLO) (5A) (DETECT? OR DETERMIN? OR ASSAY? OR ANALY? OR MEASUR? OR MONITOR? OR TEST? OR ESTIMAT? OR EVALUAT? OR QUANTIF? OR SENSE# OR SENSOR OR SENSING OR PROBE# OR PROBING)  
L13 12 S L12 AND (L5-6 OR AZO?)  
L14 2424 S AZO? AND (BORATE OR BORIC OR BO3 OR BO4 OR BUFFER?)  
L15 659 S L14 AND (REAGENT OR COLORIM? OR PHOTOMET? OR SPECTROPHOTOMET?)  
L16 60 S L15 AND MASK?  
L17 58 S L15 AND (AMMONIA OR AMMONIUM(A) HYDROXIDE OR NH3 OR NH4OH)  
L18 37 S L15 AND EDTA  
L19 185 S L8-9, L11, L13, L16-18  
L20 178 S L19 NOT PY>1998

=> d bib, ab 1-178

L20 ANSWER 4 OF 178 CA COPYRIGHT 2001 ACS  
AN 130:10057 CA  
TI Photometric determination of calcium in spheroidizing agent with ATAZ-mCl  
AU Zhou, Feng; Ling, Shurong  
CS Wuxi Yongxin Special Alloy Ltd., Co., Wuxi, 214072, Peop. Rep. China  
SO Lihua Jianyan, Huaxue Fence (1998), 34(5), 218-219  
AB A method for the photometric detn. of Ca in spheroidizing agent with m-chloro azo-antipyrine (ATAZ-mCl) was presented. The interference from F, Si and Ba ions was eliminated by H<sub>2</sub>SO<sub>4</sub>, the great amts. of Fe and rare earth were pptd. by NH<sub>3</sub>.H<sub>2</sub>O, and the interferences of other ions were masked by using triethanolamine and 8-hydroxyquinoline. A complex was formed by Ca and ATAZ-mCl in 0.1M NaOH medium. The absorption max. was at 620 nm, the apparent molar absorptivity 1.5 x 10<sup>4</sup>, and the Beer's law was obeyed at 0-40 µg/25 mL. The method was suitable for the detn. of Ca at 1-5% in rare earth magnesia spheroidizing agent with the recovery 97.7-100.7%.

L20 ANSWER 5 OF 178 CA COPYRIGHT 2001 ACS  
AN 129:310042 CA  
TI Phase separation photometric determination of trace nickel by reaction system of Ni(II)-MOBTAMB-Triton X-100  
AU He, Qiaohong; Zhu, Youyu; Mao, Xueqin

CS Department of Chemistry, Hangzhou University, Hangzhou, 310028, Peop. Rep. China  
SO Lihua Jianyan, Huaxue Fence (1998), 34(3), 109-110  
AB The conditions for phase sepn. of the compd. Ni(II)-2-[2'-(6'-methoxybenzothiazolyl)azo]-5-dimethylaminobenzoic acid with Triton X-100 at cloud point state were studied. The phase sepn. completed after heating on a water bath at 90 °C for 1.5 h at pH 8.6-9.5 with an NH<sub>3</sub>-NH<sub>4</sub>Cl buffer soln. The absorption max. was at 658 nm, the molar absorptivity was 5.5 x 105, and Beer's law was obeyed at 0-3 µg/30 mL. Fe<sup>3+</sup>, Al<sup>3+</sup> and Cu<sup>2+</sup> were masked with NaF and thiourea. The method was used to det. trace Ni in natural water with satisfactory results.

L20 ANSWER 6 OF 178 CA COPYRIGHT 2001 ACS  
AN 129:235315 CA

TI Comparison of spectrophotometric methods for measuring chlorine dioxide in drinking water

AU Hofmann, R.; Andrews, R. C.; Ye, Q.

CS Dep. Civil Engineering, Univ. Toronto, Toronto, ON, M5S 1A4, Can.

SO Environ. Technol. (1998), 19(8), 761-773 CODEN: ENVTEV; ISSN: 0959-3330

AB The recognition that chlorine disinfection of drinking water may not be effective in controlling such as Cryptosporidium may lead to the greater use of stronger alternative disinfectants, such as chlorine dioxide. Typical chlorine dioxide residual concn. requirements for disinfection may extend to less than 0.1 mg L<sup>-1</sup>, thus requiring very good quantitation methods for optimal process control. Traditional methods have been cumbersome and sometimes inaccurate. This study examd. three spectrophotometric methods for measuring chlorine dioxide in the <0.1 mg L<sup>-1</sup> to 2 mg L<sup>-1</sup> range, using acid chrome violet K (ACVK), lissamine green B, and amaranth reagents. Each methods was assessed using both lab. reagent water and various natural waters to identify the resp. linear range, method precision, and the possible interference from natural color due to aq. org. matter. Interferences arising from the presence of chlorine, chloramines, chlorite, chlorate, and permanganate were also evaluated, along with potential need to correct for temp. changes.

L20 ANSWER 13 OF 178 CA COPYRIGHT 2001 ACS  
AN 124:163631 CA

TI Chromogenic reaction of nickel with o-carboxybenzenediazoaminoazobenzene and its application

AU Guo, Zhongxian; Tao, Yuguo; Zhang, Shuyun

CS Dep. Chemical Eng., Sichuan Inst. Light Industry Chem. Technology, Zigong, 643033, Peop. Rep. China

SO Yankuang Ceshi (1995), 14(3), 205-7 CODEN: YACEEK; ISSN: 0254-5357

AB A red complex of Ni with o-carboxybenzenediazoaminoazobenzene (CDAA) formed in the presence of p-octylpolyethyleneglycol Ph ether (OP) in borax buffer (pH 9.7-10.0) was used for spectrophotometric detn. of Ni. The complex showed a Ni(II) to CDAA molar ratio 1:2, an apparent molar absorptivity 1.99 x 105 L mol<sup>-1</sup> cm<sup>-1</sup> at 540 nm and a Sandell sensitivity 2.95 x 10<sup>-4</sup> µg/cm<sup>2</sup>. Beer's law was obeyed at 0-0.20 µg/mL. The method was used for the detn. of Ni in ore and alloy steel samples in the presence of masking agents. The results were in good agreement with the certified values.

L20 ANSWER 14 OF 178 CA COPYRIGHT 2001 ACS  
AN 123:202004 CA

TI Degradation of azo dyes by sodium hypochlorite. 3. Estimation of the rate equation for the degradation of orange G and benzopurpurine

AU Kanazawa, Hitoshi; Onami, Tetsuo

CS Fac. Educ., Fukushima Univ., Fukushima, 960-12, Japan

SO Bull. Chem. Soc. Jpn. (1995), 68(9), 2483-9  
AB Degradn. of the azo dyes orange G (C.I. Acid Orange 10) and benzopurpurine (C.I. Direct Red 2) by NaOCl in water was obsd. by UV spectroscopy. The obsd. values of the max. absorbance in the spectra of the reaction mixt. fitted well with the polynomials of the fifth degree in reaction time, t. The initial degrdn. rate of each dye was obtained easily as the differential coeff. of the functions at  $t = 0$ . The degrdn. rate ( $R_d$ ) of both dyes in the initial stage of the reaction was given by the second-order rate equation,  $R_d = k[\text{dye}][\text{NaOCl}]$ , where  $k$  was a rate const. Apparent activation energies and frequency factors of the degrdn. were estd. as 20.3 kJ mol<sup>-1</sup> and  $4.59 \times 10^4$  dm<sup>3</sup> mol<sup>-1</sup> s<sup>-1</sup>, resp., for orange G, and 9.56 kJ mol<sup>-1</sup> and  $5.78 \times 10^3$  dm<sup>3</sup> mol<sup>-1</sup> s<sup>-1</sup>, resp., for benzopurpurine.

L20 ANSWER 15 OF 178 CA COPYRIGHT 2001 ACS

AN 122:196511 CA

TI Synergistic product selection test for biocides for industrial water treatment

IN Robertson, Linda R.

PA Nalco Chemical Co., USA

SO U.S., 11 pp. Cont.-in-part of U.S. Ser. No. 670,858, abandoned.

PI US 5374536 A 19941220 US 1992-979750 19921123

PRAI US 1991-670858 19910318

AB The product selection test is developed for rapid detn. of the presence of synergistic blends of the biocide or the presence of biocide blends in contaminated waters. The method uses a redn. oxidn. dye system, supplied nutrients, admixts. of  $\geq 1$  biocides or blends and incubation times and temps. providing for a variation of color changes of the dye system. Industrial waters such as pulp and paper waters contaminated with microbes can be tested by this rapid method of detg. the presence of synergistic blends of antimicrobial agents.

L20 ANSWER 19 OF 178 CA COPYRIGHT 2001 ACS

AN 120:325741 CA

TI Degradation of azo dyes by sodium hypochlorite. II. Estimation of activation energy for degradation of Bordeaux Red by spectrophotometry

AU Kanazawa, Hitoshi; Harata, Yukimi

CS Fac. Educ., Fukushima Univ., Fukushima, 960-12, Japan

SO Fukushima Daigaku Kyoikugakubu Ronshu, Rika Hokoku (1993), 51, 31-5

AB The decrease in the absorbance at 519 nm of Bordeaux Red aq. soln. upon degrdn. with NaClO was expressed as a five-order function of reaction time. The overall activation energy was calcd. by an Arrhenius plot to be 20.2 kJ mol<sup>-1</sup>.

L20 ANSWER 25 OF 178 CA COPYRIGHT 2001 ACS

AN 118:40798 CA

TI Degradation of azo dyes by sodium hypochlorite. I. Convenient method for the evaluation of degradation rates of azo dyes with sodium hypochlorite in aqueous solution by spectrophotometry

AU Kanazawa, Hitoshi; Harata, Yukimi; Onami, Tetsuo

CS Fac. Educ., Fukushima Univ., Fukushima, 960-12, Japan

SO Fukushima Daigaku Kyoikugakubu Ronshu, Rika Hokoku (1991), 48, 37-47

AB The degrdn. of the water-sol. azo dyes bordeaux red, crystal scarlet, and azophloxine by NaOCl was examd. spectrophotometrically. The max. absorbance in the visible region decreased to zero in a given time, but some absorbances in the UV region increased somewhat at the moment of the addn. of NaOCl and decreased slowly after that. The spectral changes in the degrdn. gave a good correlation to fifth-order functions of time obtained by the least-squares method.

L20 ANSWER 29 OF 178 CA COPYRIGHT 2001 ACS  
AN 117:55506 CA  
TI Determination of free and combined residual chlorine by flow-injection spectrophotometry  
AU Verma, Krishna K.; Jain, Archana; Townshend, Alan  
CS Sch. Chem., Univ. Hull, Hull, HU6 7RX, UK  
SO Anal. Chim. Acta (1992), 261(1-2), 233-40  
AB A new reaction scheme to det. free residual Cl in the presence of other Cl species, viz. ClO<sub>2</sub><sup>-</sup>, ClO<sub>3</sub><sup>-</sup>, and ClO<sub>2</sub>, was evaluated. The scheme is based on the oxidn. of 4-nitrophenylhydrazine by free Cl to the 4-nitrophenyldiazo cation and its electrophilic coupling with N-(1-naphthyl)ethylenediamine dihydrochloride to give an azo dye with an absorption max. at 532 nm. Flow-injection systems are proposed to det. 0.05-10 µg/mL free Cl by the reagent-injection technique, and 1-40 µg/mL free Cl by sample injection. The limits of detection of free Cl and mean relative std. deviation (range) were 0.03 µg/mL and 0.9% (0.6-1.2%), and 0.4 µg/mL and 0.6% (0.4-0.8%), resp. Only ClO<sub>2</sub> interferes. The results were in good agreement with those obtained by flow-injection N,N-diethyl-p-phenylenediamine spectrophotometric and classical iodometric titrn. methods. Since chloramines do not interfere in free Cl detn., a method was developed to det. total Cl (and hence of combined Cl by difference after detn. of free Cl) utilizing a secondary reaction of both free and combined Cl with Br<sup>-</sup> to yield Br which then acts as oxidizing agent. The sample throughput was 110/h in both methods.

L20 ANSWER 37 OF 178 CA COPYRIGHT 2001 ACS  
AN 112:185395 CA  
TI Determination of cobalt in water with a new reagent - gamma-azo-nitrophenol  
AU Dedkova, V. P.; Azarashvili, M. A.; Savvin, S. B.  
CS V. I. Vernadskii Inst. Geochem. Anal. Chem., Moscow, USSR  
SO Zh. Anal. Khim. (1989), 44(11), 2012-15  
AB A spectrophotometric method for the detn. of Co in water, wastewater, or process solns. is based on the reaction of Co with gamma- azonitrophenol (2-amino-5-nitrophenol-2-[1-azo]-8-naphthalenol-6-sulfonic acid). The method uses a glycine-phosphate buffer system to ensure the opt. pH for complex formation and a masking mixt. consisting of K4P2O7, EDTA, and NaF to increase the selectivity. The detn. error is ≤3%.

L20 ANSWER 40 OF 178 CA COPYRIGHT 2001 ACS  
AN 108:231154 CA  
TI Method for determination of active chlorine in solutions by azo dye discoloration or a paper indicator  
IN Halamek, Emil; Prikryl, Frantisek; Soucek, Jan; Tessarek, Jiri; Kellner, Josef; Veverka, Vaclav; Kalaskova, Olga; Kremlcka, Antonin  
PA Czech.  
SO Czech., 4 pp.  
PI CS 239708 B1 19860116 CS 1984-268 19840112  
AB Aq.-alc. solns. of azo dyes are discolored by active Cl. A soln. of Na 1-(2-hydroxynaphthyl)azobenzene-4-sulfonate in aq. MeOH was treated with an aq. Ca(OCl)<sub>2</sub> soln. in a hydrogen phthalate buffer soln. of pH 1-5 and the Cl was detd. from the length of the discoloration period. Optionally, paper strips were impregnated with the dye and dipped in the test soln. for semiquant. estn.

L20 ANSWER 71 OF 178 CA COPYRIGHT 2001 ACS  
AN 96:161461 CA

TI Microanalytical azomethine-H method for boron determination in plant tissue  
AU Lohse, Gerald  
CS Dep. For. Resour., Univ. Idaho, Moscow, ID, 83843, USA  
SO Commun. Soil Sci. Plant Anal. (1982), 13(2), 127-34  
AB A spectrophotometric method of B detn. at 420 nm using azomethine-H [32266-60-7] reagent for color development in filtrate from dry ashed plant material extd. with 1N H<sub>2</sub>SO<sub>4</sub> for 1 h at 20° was sensitive to very small amts. of B in orchard leaves, with a min. threshold of 5 ppm B and a relative std. error of 3%. Optimum sensitivity was obtained when the absorbance was measured 45-120 min after azomethine-H addn. A buffer-masking agent was added to the filtrate before reagent addn. Optimum sample size was 20 mg oven-dried sample at 500°.

L20 ANSWER 73 OF 178 CA COPYRIGHT 2001 ACS

AN 95:2868 CA

TI Flow injection spectrophotometric determination of boron in plant material with azomethine-H

AU Krug, F. J.; Mortatti, J.; Pessenda, L. C. R.; Zagatto, E. A. G.; Bergamin F., H.

CS Cent. Energ. Nucl. Agric., USP, Piracicaba, 13.400, Brazil

SO Anal. Chim. Acta (1981), 125, 29-35

AB The method involves the injection of 1.0 mL of an acid plant digest into a 0.1 M Cl stream, with further addn. of a buffer-masking soln. and azomethine-H (I) as the color reagent. Effects of pH, kinetics of color development, sample vol., reagent compn., and interferences are described. The method allows the anal. of plant exts. with B contents in the range of 0.1-6.0 ppm at a rate of 60 detns. per h, with a reagent consumption of 2 mg I per sample. The precision is good (relative std. deviation <1%) and the results agree with those obtained by the curcumin method.

L20 ANSWER 97 OF 178 CA COPYRIGHT 2001 ACS

AN 83:71055 CA

TI Luminescent determination of gallium with azomethines prepared from 4-aminoantipyrine

AU Tashkhodzhaev, A. T.; Zel'tser, L. E.; Talipov, Sh. T.; Khikmatov, Kh.

CS Tashk. Gos. Univ., Tashkent, USSR

SO Zavod. Lab. (1975), 41(3), 281

AB Ga, 0.001-1 µg/ml, was detd. in silicate rocks, HCl, H<sub>2</sub>O, and metallic Zn by a fluorometric method with salicylidene-4-aminoantipyrine (I) or resorcylidene-4-aminoantipyrine (II) as the reagents. Ga was preconcd. by extn. into 1:4 BuOAc-C<sub>6</sub>H<sub>6</sub> and reextn. of Ga into H<sub>2</sub>O. The aq. phase was treated subsequently with acetate-NH<sub>3</sub> (for I) or NaOH-C<sub>1</sub>CH<sub>2</sub>CO<sub>2</sub>H buffer (for II) to adjust the pH to 3-4 and with 5mM I in Me<sub>2</sub>CO or II in DMF; Zn, Al, Fe(III), Ti, Zr, UO<sub>2</sub><sup>2+</sup>, and Co were masked with a soln. contg. EDTA (di-Na salt), NaF, Na citrate, tartaric acid, and Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>. The fluorescence was excited at 405 or 366 nm and measured at 505 or 470 nm for I or II, resp. The relative std. deviations were: for (18.83-29.79) × 10-4% Ga in silicate rocks, 5-3%; for 19.0 × 10-8% Ga in HCl, 15.1%; for 2.2 × 10-5% Ga in Zn, 7.8%; and for 5.5 × 10-8% Ga in H<sub>2</sub>O, 22.7%.

L20 ANSWER 127 OF 178 CA COPYRIGHT 2001 ACS

AN 72:50600 CA

TI Spectrophotometric and complexometric determination of lead using pyridylazo, antipyrylazo, and thiazolylazo compounds

AU Gusev, S. I.; Nikolaeva, E. M.

CS Perm State Med. Inst., Perm, USSR

SO Zh. Anal. Khim. (1969), 24(11), 1674-8

AB The interaction of Pb(II) with 2-(5-bromopyridylazo)-5-diethylaminophenol

(I), 2-(4-antipyrylazo)-5-diethylaminophenol (II) and 2-(2-thiazolylazo)-5-diethylaminophenol (III) was studied. Two complexes were obtained in cryst. state. All 3 reagents are yellow at pH 6 with  $\lambda_{max}$ . at 440, 460, and 490  $m\mu$ , resp. The  $\lambda_{max}$ . of the Pb complexes are at 520  $m\mu$  for the II complex and at 575  $m\mu$  for the I and III complexes. The Pb-I complex shows max. contrastibility, its molar absorptivity is  $4.9 \times 10^4$ , while the other complexes have much lower values. Complexometric and photometric methods were developed for detg. Pb in solns. of Pb salts in the presence of other ions and in Sb-Cu-Sn-Pb alloys using I. The absorbance of the complex solns. is proportional to Pb concn. in the 1-4.5  $\mu\text{g}$  Pb/ml range. In the photometric detn. add to the soln. 5-7 ml N NH<sub>4</sub>OH, 2 ml 10% N a citrate, and 0.4 ml 2.5% KCN (to mask other ions). Then add 0.8 ml 0.3  $\times$  10<sup>-3</sup>M I and det. the absorbance photometricall y. To decomp. the alloy add 1.5 ml HNO<sub>3</sub> to 0.35 g of the sample, heat until full decompn., dil. to 300 ml with H<sub>2</sub>O, and continue as above on a 0.3 -0.8 ml aliquot. I can also be used in an extn.-photometric method for Pb detn. Place into a separatory funnel 0.1-0.7 ml 0.3  $\times$  10<sup>-3</sup> M Pb(NO<sub>3</sub>)<sub>2</sub>, 0.8 ml 0.3  $\times$  10<sup>-5</sup>M I, adjust to 10 ml with a pH 9.24 borate buffer soln., and ext. with 5 ml CHCl<sub>3</sub> by shaking for 30 sec and det. the absorbance of the violet colored complex at 560  $m\mu$ . The absorbance is proportional to Pb concn. in the 0.1-8  $\mu\text{g}$ /ml range. In the complexometric detn. dissolve the alloy (0.1 g) in 1.5 ml HNO<sub>3</sub>, dil. to 30 ml with H<sub>2</sub>O. To an aliquot add pH 4.5 acetate buffer, some concd. thiourea soln., 1-2 drops 0.05% I, and titrate with Complexon III from violet to yellow.

L20 ANSWER 130 OF 178 CA COPYRIGHT 2001 ACS  
AN 71:108674 CA  
TI 2-[(2-Hydroxy-5-nitrophenyl)azo]-4,5-diphenylimidazole monoacetic acid as an analytical reagent  
AU Mattison, Louis E.; Metaxas, J. M.; O'Dell, C. S.  
CS King Coll., Bristol, Tenn., USA  
SO Anal. Chem. (1969), 41(12), 1690-2  
AB 2-[(2-Hydroxy-5-nitrophenyl)azo]-4,5-diphenylimidazole monoacetic acid (I) was prep'd. by treating 2-amino-4-nitrophenol 1st with NaNO<sub>2</sub> then with 4,5-diphenylimidazole and recrystg. the ppt. from HOAc. I was characterized by elemental anal., ir spectroscopy, and mass spectrometry and studied as an anal. reagent for metal ions. I was a suitable indicator for EDTA titrns. of Zn, Cd, Mn, and Pb. At pH 10 in a 50% NH<sub>3</sub>-EtOH buffer, I formed a sol. complex with Co. The absorbance of the soln. at 632 nm. was related linearly to Co concn. in the range 1-15 ppm. Cu(II), Zn, Hg(II), Cd, Mn(II), Pb(II), and Ni(II) interfered with the photometric detn. of Co with I. Cu(II) was extd. quant. from pH 4.9 OAc- buffer by 0.005% I in isoamyl alc. Absorbance of the ext. at 605 nm. was related linearly to Cu concns. -10 ppm. Interferences were similar to those for the Co detn. In 50% EtOH apparent acid dissociation const. for the phenolic H of I was pKa = 6.08. In EtOH media buffered at pH 3.6-4.6 and at pH 10, the wavelengths of max. absorption for I were 471 and 511 nm., resp. with molar absorptivities of  $2.7 \times 10^4$ .

L20 ANSWER 134 OF 178 CA COPYRIGHT 2001 ACS  
AN 70:102682 CA  
TI 2-(2-Pyridylazo)-5-diethyl-m-aminophenol, its bromo- and dibromo-substituted derivatives in the pyridine ring, and their thiazolyl analogs as reagents for the photometric determination of cobalt  
AU Gusev, S. I.; Kiryukhina, N. N.  
CS Perm State Med. Inst., Perm, USSR  
SO Zh. Anal. Khim. (1969), 24(2), 210-15  
AB The interaction of Co(II) ions with 2-(2-pyridylazo)-5-diethyl-m-

aminophenol (I) and its bromo (II) and dibromo (III) substituted derivs. and with 2-(2-thiazolylazo)-5-diethyl-m-aminophenol (IV) was studied. Co interacts with all these reagents in a 1:3 molar ratio in a wide pH range (2-10). Max. absorbances of the complexes are at 570, 580, 590, and 580  $\mu\text{m}$  for I, II, III, and IV, resp., with molar absorptivities of  $8.4 \times 10^4$ ,  $9.9 \times 10^4$ ,  $9.6 \times 10^4$ ,  $6.9 \times 10^4$ . By introducing the Br atom into the pyridine ring (in the 5th position) the coordination bond of the pyridine N with Co is sharply decreased and despite its high molar absorptivity, the reagent can not be used for the Co detn. in alloys. The detn. of Co in steels was carried out with I. The Co-I complex obeys Beer's law in the range of 0.05-1 g Co/ml. at pH 6. I interacts also with Fe and Ni, and thus they have to be masked with Complexon III prior to Co detn. This also masks the interference of 300-fold amts. of Mn, and 500-fold amts. of Al and Zn. Large amts. of Cu have to be masked with 10% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>, equal amts. of Cr do not interfere. Decomp. 50 mg. of steel in a 1:1 mixt. of HNO<sub>3</sub> and HCl, evap. to a small vol., and dil. to 100 ml. with H<sub>2</sub>O. To a 25-ml. aliquot, add 2.5 ml. 20% ammonium citrate, 2 ml. 10% NH<sub>4</sub>OH, 2 ml. 0.03% I, and 1 ml. satd. Complexon III soln., and heat to 70-80° for 30 min. Cool, dil. to vol. with a pH 8 buffer, and measure the absorbance at 582  $\mu\text{m}$ .

L20 ANSWER 139 OF 178 CA COPYRIGHT 2001 ACS

AN 70:43721 CA

TI Kinetic determination of cobalt

AU Popa, Grigore; Costache, D.

CS Univ. Bucharest, Bucharest, Rom.

SO Rev. Roum. Chim. (1968), 13(5), 573-9

AB The reagent is Bordeaux-S (I), 0.0271 % in H<sub>2</sub>O. A 3:5 mixt. was prep'd. with a buffer soln. (0.5 g. H<sub>3</sub>BO<sub>3</sub> dissolved in 100 cc. 0.25N NaOH). To 10 cc. of this mixt. was added 2 cc. of 3.086% H<sub>2</sub>O<sub>2</sub> (concn. verified hourly with KMnO<sub>4</sub> in acid medium) and various amts. of CoSO<sub>4</sub> soln. followed by double-distd. H<sub>2</sub>O to make 25 ml. (0.0776 g. spectrally pure Co dissolved in dil. H<sub>2</sub>SO<sub>4</sub>, and from this a working soln. is prep'd. contg.  $3.88 \times 10^{-7}$  g. Co/cc.). The mixt. is stirred and passed into a photometer cell and the absorbance was measured with respect to H<sub>2</sub>O as reference at 1 min. intervals. The reaction rate increased with the H<sub>2</sub>O<sub>2</sub> concn. up to a max. value, after which it leveled off or decreased owing to the stabilization of the H<sub>2</sub>O<sub>2</sub> with H<sub>3</sub>PO<sub>4</sub>, and to the decrease of pH with increase of the H<sub>2</sub>O proportion. The reaction rate increased with pH, leveling off after 11. The optimum reaction conditions were pH 11.5-13, H<sub>2</sub>O<sub>2</sub> concn.  $2.47 \times 10^{-3}$  g./cc., I concn.  $4.06 \times 10^{-5}$  g./cc. Under these conditions the reaction rate increased with Co concn., the rate const. being 0.0966 for no Co, 0.1099 for  $3.10 \times 10^{-9}$ , and 0.1678 for  $15.5 \times 10^{-9}$  g. Co/cc. Over this concn. range, Co could be detd. at 20 to 10% error with no interference from Na<sup>+</sup>, K<sup>+</sup>, Li<sup>+</sup>, Sn<sup>4+</sup>, Ba<sup>2+</sup>, Ca<sup>2+</sup>, Sr<sup>2+</sup>, Be<sup>2+</sup>, Mg<sup>2+</sup>, Fe<sup>3+</sup>, Sb<sup>3+</sup>, Sb<sup>5+</sup>, Mo<sup>6+</sup>, Th<sup>4+</sup>, Ge<sup>4+</sup>, Cd<sup>2+</sup>, Cu<sup>2+</sup>, Ni<sup>2+</sup>, Cr<sup>3+</sup>, Cr<sup>6+</sup>, Pd<sup>2+</sup>, Ag<sup>+</sup>, NH<sup>4+</sup>, I<sup>-</sup>, Br<sup>-</sup>, OAc<sup>-</sup>, NO<sub>3</sub><sup>-</sup>, CO<sub>3</sub><sup>2-</sup>, SO<sub>4</sub><sup>2-</sup>, SCN<sup>-</sup>, [Fe(CN)<sub>6</sub>]<sup>4-</sup>, and [Fe(CN)<sub>6</sub>]<sup>3-</sup>.

=> log y

STN INTERNATIONAL LOGOFF AT 14:11:45 ON 14 JUN 2001

=> d his

(FILE 'HOME' ENTERED AT 07:47:24 ON 15 JUN 2001)

FILE 'REGISTRY' ENTERED AT 07:47:38 ON 15 JUN 2001

L1 1 S CHLORINE DIOXIDE/CN  
SEL NAME L1

FILE 'CA' ENTERED AT 07:48:25 ON 15 JUN 2001

L2 119472 S L1 OR E1-25 OR CLO<sub>2</sub> OR OCLO OR OCL OR CLO OR HCLO<sub>2</sub> OR HCLO OR